

Claims:

1. A method of forming a desired positive image on a lithographic printing plate having leading and trailing ends and side edges and comprising a hydrophilic substrate with an oleophilic coating thereon
5 wherein said coating is soluble in selected solvent compositions, said method comprising the application in a desired pattern of a first selected solvent composition to said coating by jet printing thereby dissolving away said coating in said desired pattern and thus exposing said hydrophilic substrate and forming a residual oleophilic
10 coating in the form of the desired positive image on the hydrophilic substrate and comprising the further step of separately applying a second selected solvent composition to said coating on said leading and trailing ends of said plate.
- 15 2. A method as recited in claim 1 wherein said step of separately applying said second selected solvent composition comprises the step of contacting an absorbent pad containing said second selected solvent composition with said leading and trailing ends.
- 20 3. A method as recited in claim 1 wherein said first and second selected solvent compositions are the same.
4. A method as recited in claim 2 wherein said first and second selected solvent compositions are the same.
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5. A method as recited in claim 1 and further including the step of separately applying said second selected solvent composition to said coating on said side edges.
- 30 6. A method as recited in claim 5 wherein said step of separately applying said second selected solvent composition to said coating on said side edges comprises the step of contacting absorbent pads

containing said second selected solvent composition with said side edges.

7. A method as recited in claim 5 wherein said first and second
5 selected solvent compositions are the same.

8. A method as recited in claim 6 wherein said first and second selected solvent compositions are the same.

10 9. A method of forming a desired positive image on a lithographic printing plate having leading and trailing ends and side edges and comprising a hydrophilic substrate with an oleophilic coating thereon wherein said coating is soluble in selected solvent compositions, said method comprising the application in a desired pattern of a first
15 selected solvent composition to said coating by jet printing thereby dissolving away said coating in said desired pattern and thus exposing said hydrophilic substrate and forming a residual oleophilic coating in the form of the desired positive image on the hydrophilic substrate and comprising the further step of separately applying a
20 second selected solvent composition to said coating on one or more of said ends and side edges.

10. A method as recited in claim 9 wherein said step of separately applying said second selected solvent composition comprises the step
25 of contacting an absorbent pad containing said second selected solvent composition with said one or more ends and side edges.

11. A method as recited in claim 9 wherein said first and second selected solvent compositions are the same.

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12. A method as recited in claim 10 wherein said first and second selected solvent compositions are the same.

13. A method as recited in claim 9 and further including the step of hardening said residual oleophilic coating.

5 14. A method as recited in claim 9 wherein said coating is selected from the group consisting of novalac resins, resole resins, acrylate resins, diazo resins and photopolymers.

10 15. A method as recited in claim 9 wherein said coating has a composition which may be insolubilized by actinic radiation and further including the step of post treating with actinic radiation to insolubilize said residual oleophilic coating.

15 16. A method as recited in claim 15 wherein said coating comprises a photopolymer or a diazo resin or mixtures thereof.

17. A method as recited in claim 9 wherein said coating has a composition which may be hardened by heating and further including the step of post treating by heating to harden said residual oleophilic
20 coating.

18. A method as recited in claim 17 wherein said coating comprises a phenolic resin.

25 19. A method as recited in claim 9 wherein said selected solvent compositions are aqueous solutions.

20. A method as recited in claim 19 wherein said aqueous solution is a solution of sodium metasilicate.

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21. A method as recited in claim 19 wherein said aqueous solution is an aqueous alkaline solution.

22. A method as recited in claim 9 wherein said selected solvent compositions comprise an organic solvent.

5 23. A method as recited in claim 19 wherein said aqueous solution contains an organic solvent.

24. A method as recited in claim 23 wherein said aqueous solution is an aqueous alkaline solution.

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25. A method as recited in claim 24 wherein said aqueous solution comprises a solution of sodium metasilicate and said organic solvent is benzyl alcohol.

15 26. A method as recited in claim 22 wherein said organic solvent is selected from the group consisting of ketones, alcohols, ethers and ether linked alcohols and acetates.

20 27. A method as recited in claim 26 wherein said solvent is selected from the group consisting of methyl ethyl ketone, cyclohexanone, acetone, glycol ethers, dioxane, benzyl alcohol, 1-methoxy-2-propanol and 3-methoxyethyl acetate.

25 28. A method of forming a desired positive image on a lithographic printing plate having leading and trailing ends and side edges and comprising a hydrophilic substrate with an oleophilic coating thereon wherein said coating is soluble in selected solvent compositions, said method comprising conveying said plate through a jet printer and while said plate is being conveyed performing the steps of:

30 a. applying a first selected solvent composition to said coating by jet printing in a desired pattern thereby dissolving away said coating in said desired pattern and

thus exposing said hydrophilic substrate and forming a residual oleophilic coating in the form of the desired positive image on the hydrophilic substrate;

- b. applying a second selected solvent composition to said coating on said leading and trailing ends of said plate; and
- 5 c. detecting said leading and trailing ends of said plate and controlling the applications of said first and said second selected solvent compositions in response to said detections of said leading and trailing ends.

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29. A method as recited in claim 28 and further performing the steps of applying said second selected solvent composition to said coating on said side edges.

- 15 30. A method as recited in claim 29 and further comprising the steps of detecting said side edges and controlling the application of said second selected solvent composition to said side edges in response to said detections of said side edges.

- 20 31. Apparatus for forming a desired positive image on a lithographic printing plate having leading and trailing ends and side edges and comprising a hydrophilic substrate with an oleophilic coating thereon wherein said coating is soluble in selected solvent compositions, said apparatus comprising a jet printer adapted to apply a first selected
25 solvent composition to said coating in a desired pattern thereby dissolving away said coating in said desired pattern and thus exposing said hydrophilic substrate and forming a residual oleophilic coating in the form of the desired positive image on the hydrophilic substrate and further comprising means for separately applying a
30 second selected solvent composition to said coating on said leading and trailing ends of said plate.

32. Apparatus as recited in claim 31 wherein said means for separately applying said second selected solvent composition comprises an absorbent pad adapted to contain said second selected solvent composition and means for contacting said absorbent pad with said leading and trailing ends.

33. Apparatus as recited in claim 32 wherein said means for contacting said absorbent pad with said leading and trailing ends comprises means for reciprocating said absorbent pad across said ends.

34. Apparatus as recited in claim 31 and further comprising means for separately applying said second selected solvent composition to said coating on said side edges.